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Relativistic Reflections

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RELATIVISTIC REFLECTIONS

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An important result of the great interest in the theory of relativity has been that mathematicians and physicists on the one hand, philosophers on the other, have given increasing attention to each other's work. It may not, then, be out of place for one whose interest in the subject has been mainly on the mathematical side to examine some philosophical inferences which have been drawn from it.

Some idealists see in relativity a confirmation of their philosophy. For, say they, if those attributes which seem inherent in the external world — measures of distance and time — depend for their evaluation on the state of the observer, it is reasonable to suppose that that world should have no attributes, and so no existence, were it not an object for some mind.

Karl Joel,[1] adducing from this theory support for his type of idealism, went further, inferring that the relativisation of mass, etc., loosened the order of nature enough to allow freedom to enter — a freedom which our short span of experience prevents us from recognising. The downfall of determinism is seen also (for instance, by Gustav Mokrzycki [2]) as a consequence of the relative meaning to be attached to the words "before" and "after."

To my mind, those who look to relativity for a decision on the questions of idealism and freedom will find little help. It is true that some attributes of matter and space have become relative. Yet the whole aim of the scientist who works on the newer physics is to find new, absolutely valid laws. If the old rigid framework did not fit the universe, it must be thrown away, but only to be replaced by another equally unyielding. The new absolute laws make no fresh space for freedom, nor do they depend for validity on the choice of an observer.

As for causation, does the abolition of absolute "before" and "after" banish determinism? Let us recall that, given an event A, another event B may be in one of three zones, whose boundaries are the two sheets of the "causal cone." If it is in the first, all observers will agree that it is "before" A; if in the third, their

1 Seele und Welt, Jena, Diederichs, 1912; for instance, pp. 358 ff.
2 Relativisierung des Kausalitätsbegriffes, Leipzig, Hillmann, 1922.

opinion is unanimous that it is "after" A. As for an event in the middle zone, observers will disagree on its priority with regard to A. Now it is the events in the middle zone, and these alone, which are absolutely excluded from being either cause or effect of A. Events which can have causal connection with it — through remoteness in time or proximity in space — are in the unambiguous zones, and can be, respectively, only cause or only effect. No more violence is done the principle of causation by relativistic physics than by the circumstance that the Battle of New Orleans — in the days before steamer and cable, be it remembered — occurred after the conclusion of peace between the nations in conflict. There is nothing, then, to disturb the belief that effect always follows cause.

It should, however, be added that it is only by *definition* that the effect is subsequent to its causes. An event A is, let us say, the result of n preceding ones. Each of the latter — for instance, B — can be inferred from A and the remaining $(n\text{-}1)$; if causation were to be defined independently of time, the effect of causes being only an event surely to be inferred from them, should not B be taken as an effect of the other n, of which some are subsequent to it, and some may, indeed, be in the ambiguous zone between the nappes of its causal cone? This consideration is often obscured by the emphasis placed on a few prior causes of A, to the exclusion of others equally important from a logical point of view.

Perhaps Viscount Haldane [3] has drawn the most far-reaching conclusions from his acceptance of relativity. To him physical relativity is but a beginning of the relativities of truth — leading to that of the levels of experience, inanimate, animate, and human. To mention but one objection to this inference, — the experiences compared in the physical theory are always of the same kind, and their equal validity can give no support to the assumption of equal validity of reports of experiences on different "levels."

But if relativity gives no reason for believing in idealism, or freedom, or philosophical relativism, it gives no new grounds for rejecting them. It adds no insight into the mystery of consciousness, including pleasure, conscience, will, and the subjective certainty of human freedom.

Still, if relativity gives no aid in the solution of these questions, its philosophical importance is yet considerable. The scepticism which it has occasioned concerning those properties of time, space, and matter which one accepts instinctively will be a permanent asset in training for philosophic and scientific thought.

[3] The Realm of Relativity, New Haven, Yale University Press.

And there is one specific suggestion for the philosopher which is worth mentioning. On the physical side, men have been forced gradually to abandon their belief in an absolute vertical direction, in the central and unmoving position of the earth, in a universally valid "here" and "now." Parallel to this process, there has been, on the philosophical side, an escape from anthropomorphism, from belief in a God peculiarly interested in this nation, or race, or planet. How must the idealist now further change his concept of a being conscious of the universe? Let us begin with a consciousness of all space at an instant — a natural conception for an idealist in any cosmogony known before 1905. By such a consciousness past, present, and future could be regarded in three different ways. Now, however, it is clear that a being peculiarly conscious of all events of one instant would, at best, agree with the judgment as to simultaneity of only a small fraction of finite observers. But this, like the special interest in a chosen nation, is a quite improbable anthropomorphism.[4] A view of three-dimensional space as a whole will, almost certainly, involve embracing the four-dimensional space-time in one act of consciousness. And does not this imply that hope, will, purpose, all those states of consciousness which require that past and future be regarded differently, are too finite to be ascribed to an all-seeing one?

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4 To be sure, Aloys Müller (in "Die Philosophischen Probleme der Einsteinschen Relativitätstherie," Braunschweig, Vieweg, 1922), himself a relist, might lend aid to the believers in such an omniconsciousness as I dispute, with his "wirkliche Zeit." Yet, though I regard his book as one of the most important philosophical discussions of relativity, I cannot see cogency in his argument for this additional kind of time.